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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/672,069	09/28/2000	Yukihisa Takeuchi	789_048 NP	7280
25191	7590	11/10/2003	EXAMINER	
BURR & BROWN PO BOX 7068 SYRACUSE, NY 13261-7068			BUDD, MARK OSBORNE	
			ART UNIT	PAPER NUMBER
			2834	

DATE MAILED: 11/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/672,069

Applicant(s)

TAKEUCHI ET AL.

Examiner

Mark Budd

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 3,4, 6-41 and 68-73 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-41 is/are allowed.
- 6) ☒ Claim(s) 3,4,6-13 and 68-73 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_. 6) ☐ Other: \_\_\_\_\_

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Claims 10-13 and 68-73 are rejected under 35 USC 103 as unpatentable over Brunnee in view of Ogawa (057), Kohno or Kaida. Brunnee teaches the piezo- electric device including a single layer of piezo- electric material mounted on a thin metal plate to bend the plate upon actuation. Brunnee does not explicitly use multiple piezo- layers or some specific claimed dimensions. However, each of Ogawa (057) (Fig. 15) shows terminals #4 and #13 co-planar and “substantially” rectangular full width electrodes. The geometric configuration displayed by applicant in the remarks shows Ogawa having “substantially” rectangular electrode sections (the active areas) a small connection lead. Kohno (figs. 1, 7, and 8) shows co-planar terminals e.g. #12, #14 or #32, #34. Kaida (figs. 1&2) also teaches the multi layered piezo element with co-planar terminals. Providing multiple piezo layers in lieu of a single piezo-electric layer increase the output while lowering the impedance in a known, predictable manner. Thus to provide Brunnee with multiple piezo layers with the convenience of same surface electrical connections (terminals), would have been obvious to one of ordinary skill in the art. Also, since it has long been held that optimization of a known device for a specific application is within the skill expected of the routineer, selection of specific dimensions would have been obvious to one of ordinary skill in the art.

Claims 3, 4 and 6-9 are rejected under 35 USC 103 as unpatentable over Brunnee in view of Kohno and combined with Grauley of Um. The claim adds that a thru hole is provided in the carrier plate. According to applicant’s previous remarks, the holes must be in a location at which the piezo element covers the hole. Note Um #34 and Grauley (fig. 6) which show electrodes or

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carrier plates provided with holes to increase bonding strength and/or provide electrical connections. Thus for at least these reasons it would have been obvious to one of ordinary skill in the art to provide Brunnee with thru holes under the piezo element.

Claims 14-41 remain allowed.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

M BUDD/pj

10/29/03

